

WHAT IS CLAIMED IS:

1. An ink-jet head comprising:

a joint member having an ink outlet port out of which ink supplied from an ink supply source flows;

5 a passage unit having a layered structure of a plurality of sheet members, the passage unit including an ink receiving port that confronts the ink outlet port and receives the ink flowing out of the ink outlet port, and an ink passage that extends from the ink receiving port in a layered direction of the sheet members and subsequently extends in a plane direction of the sheet members that is perpendicular to the layered direction; and

10 a filter disposed in a portion of the ink passage extended in the layered direction,

15 wherein:

the ink outlet port has a smaller area than the ink receiving port;

the joint member has a flat face that confronts the passage unit and surrounds the ink outlet port; and

20 in the portion of the ink passage extended in the layered direction, a straight columnar space is formed between the ink receiving port and the filter, and another straight columnar space is formed between the filter and one of the sheet members on a downstream side of the filter.

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2. The ink-jet head according to claim 1, wherein the flat face of the joint member, the filter, and the one of the sheet members are parallel to each other.

5 3. The ink-jet head according to claim 1, wherein the plurality of sheet members have holes formed therein, the holes constituting the portion of the ink passage that is extended in the layered direction and has a circular cross-section in the plane direction.

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4. The ink-jet head according to claim 1, wherein each of the straight columnar spaces has a cross-sectional shape and size in the plane direction that are constant along the layered direction.

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5. The ink-jet head according to claim 1, wherein a distance between the ink receiving port and the filter is shorter than a distance between the filter and the one of the sheet members on the downstream side of the filter.

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6. The ink-jet head according to claim 1, wherein a distance between the ink receiving port and the filter is longer than a distance between the filter and the one of the sheet members on the downstream side of the filter.

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7. The ink-jet head according to claim 1, wherein the filter is disposed between adjacent ones of the sheet members, and one of the adjacent sheet members that overlies the filter has a hole into which the filter is
5 fitted.

8. The ink-jet head according to claim 1, wherein:
the plurality of sheet members have holes formed therein, the holes constituting the portion of the ink
10 passage extended in the layered direction; and
one of the holes formed in one of the sheet members spaced from the filter on the downstream side is smaller than the other holes corresponding to the portion of the ink passage.

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9. An ink-jet head comprising:
a joint member having an ink pathway through which ink supplied from an ink supply source passes, an ink outlet port formed at one end of the ink pathway, and a
20 space which is formed in the vicinity of the one end of the ink pathway and whose cross-sectional shape and size in a direction perpendicular to an ink flow direction toward the ink outlet port are constant along the ink flow direction;
a passage unit having a plurality of nozzles that
25 eject ink, an ink receiving port that is larger than the

ink outlet port and receives the ink flowing out of the ink outlet port, a first ink passage that has, at one end thereof, the ink receiving port and extends in the same direction as the ink flow direction toward the ink outlet port, and a second ink passage that extends from the other end of the first ink passage to the nozzles, the passage unit being connected to the joint member such that the ink receiving port confronts the ink outlet port; and

5 a filter disposed within the first ink passage of the
10 passage unit,

wherein:

15 a first space is formed between the ink receiving port and the filter, a cross-sectional shape and size of the first space in the direction perpendicular to the ink flow direction being constant along the ink flow direction;

20 a second space is formed on a downstream side of the filter within the first ink passage, a cross-sectional shape and size of the second space in the direction perpendicular to the ink flow direction being constant along the ink flow direction; and

the first space and the second space are contiguous to each other with the filter interposed therebetween.

10. The ink-jet head according to claim 9, wherein the
25 first space is shorter in the ink flow direction than the

second space.

11. The ink-jet head according to claim 9, wherein the first space is longer in the ink flow direction than the
5 second space.

12. The ink-jet head according to claim 9, wherein a flow regulator is formed on the downstream side of the filter within the first ink passage, and is located at a
10 downstream end of the second space.

13. The ink-jet head according to claim 9, wherein:
the passage unit has a layered structure of a plurality of sheet members with holes formed therein, the
15 holes constituting the plurality of nozzles, the ink receiving port, the first ink passage, and the second ink passage;

the filter is disposed at a position, on one of the plurality of sheet members, to cover a hole formed in the
20 one sheet member and corresponding to the first ink passage; and

a sheet member put immediately on the sheet member on which the filter is disposed has a hole in which the filter is fitted.

14. The ink-jet head according to claim 9, wherein:
the passage unit has a layered structure of a plurality of sheet members with holes formed therein, the holes constituting the plurality of nozzles, the ink receiving port, the first ink passage, and the second ink passage;

the filter is disposed at a position, on one of the plurality of sheet members, to correspond to the first ink passage; and

10 a hole corresponding to the first ink passage and formed in another one of the sheet members spaced from the filter on the downstream side is smaller than other holes corresponding to the first ink passage and formed in other sheet members.

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